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(54) Title: INTEGRATED PROCESS FOR ACETIC ACID AND METHANOL

(57) **Abstract:** An integrated process for making methanol, acetic acid, and a product from an associated process is disclosed. Syngas (120) is produced by combined steam reforming (109) and autothermal reforming (118) of natural gas (102) where a portion (112) of the natural gas bypasses the steam reformer (109) and is blended with the steam reformer effluent for supply to the autothermal reformer (ATR) (118) with CO<sub>2</sub> recycle (110). A portion of the syngas is fed to CO<sub>2</sub> removal (122) to obtain the recycle CO<sub>2</sub> and cold box (130) to obtain a hydrogen stream (131) and a CO stream (135). The remaining syngas, hydrogen stream (131) and CO<sub>2</sub> from an associated process are fed to methanol synthesis (140), which produces methanol and a purge stream (124) supplied to the CO<sub>2</sub> removal unit. The methanol is supplied to an acetic acid unit (136) with the CO (135) to make acetic acid, which in turn is supplied to a VAM synthesis unit (148). Oxygen for both the ATR and VAM synthesis can be supplied by a common air separation unit (116), and utilities such as steam generation can further integrate the process.